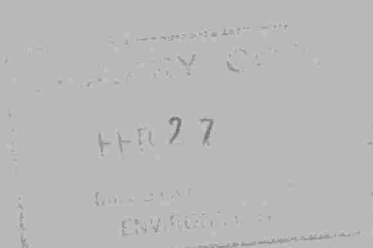


**REVIEW**  
**of the**  
**ENVIRONMENTAL ASSESSMENT**  
**REGIONAL MUNICIPALITY OF NIAGARA**  
**PORT COLBORNE WATER TREATMENT PLANT**

**PORT COLBORNE, ONTARIO**

**January 1979**



Province  
of  
Ontario

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REVIEW  
of the  
ENVIRONMENTAL ASSESSMENT

submitted by

THE MINISTRY OF THE ENVIRONMENT  
for the  
REGIONAL MUNICIPALITY OF NIAGARA'S  
PROPOSED WATER TREATMENT PLANT

at

PORT COLBORNE, ONTARIO  
E.A. FILE NO. 1-78-0006-000

JANUARY 1979  
PROVINCE OF ONTARIO

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### NOTE:

1. References to "The Act", and the term "EA Act" should be interpreted as referring to The Environmental Assessment Act, 1975.
2. The term "EA" should be interpreted as referring to the environmental assessment document for which approval under The EA Act is being sought.
3. ML/D - Million Litres per Day  
MGD - Million Gallons per Day

## RECOMMENDATION

Pursuant to Section 5(1) of The Environmental Assessment Act, it is recommended that:

- a) The environmental assessment be accepted; and
- b) The undertaking be given approval to proceed subject to the conditions on pages 18-20 of this review.

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Note: For further information or questions regarding this review, please contact the review co-ordinator, Mr. Mike G. Pratt, Ministry of the Environment, Environmental Assessment Section (416) 965-4139.

## OUTLINE OF THE REVIEW

Section I, Introduction, briefly describes the undertaking, the purpose of this review, and the two major decisions to be made under The Environmental Assessment Act. Following this is a brief statement of the review's recommendations on those two decisions, and the general rationale for the recommendations. The status of the review is also clarified.

Section II, The Undertaking, outlines the Ministry of the Environment's proposal in more detail in order to clarify the main components of the undertaking being considered for approval.

Section III, Context of the Review, explains that the scope and depth of the review relate directly to the nature of the proposed undertaking in the environmental setting which may be affected.

Section IV, Specific Points of Concern, outlines the main issues that were raised by the reviewers. The reviewers expressed their concerns in one of the following three forms:

1. As statements outlining significant deficiencies in the information presented in the EA. (Concerns expressed in this manner would have to be rectified before the EA could be recommended for acceptance);
2. As statements of caution concerning particular aspects of the proposed undertaking. (Concerns expressed in this

manner would not be severe enough to affect the decision on acceptance of this particular EA, but should be taken into consideration by the proponent if the undertaking is proceeded with);

3. As statements of caution concerning general aspects of environmental assessment of projects such as water treatment plants. (Concerns expressed in this manner would not be severe enough to affect the decision on acceptance of this particular EA, but should be taken into consideration by those contemplating environmental assessments of projects such as water treatment plants).

Section V, Conclusions, presented conclusions as to the acceptability of the EA and approval of the undertaking in light of the issues discussed in Section IV.

Section VI, presents Recommendations, and suggests conditions of approval.

## I. INTRODUCTION

On September 25, 1978, an environmental assessment for the Regional Municipality of Niagara's proposed water treatment plant at Port Colborne was formally submitted to the Minister of the Environment for approval under The Environmental Assessment Act, 1975.

On September 28, 1978, the Government Review, (see Section I-1, Page 4), of this EA was commenced. The reviewers identified a number of deficiencies in the information presented, (see Section II, Page 10-16). These deficiencies were the subject of discussions held between the proponent and the various ministries who expressed concern. The results of the discussions were summarized by the proponent into an addendum to the EA.

On December 15, 1978, the document entitled: Ontario Ministry of the Environment - City of Port Colborne - Water Treatment Plant - Project No. 5-0250-14 - Environmental Assessment Report - Addendum No. 1, was submitted to the Ministry of the Environment to amend the original submission of September 25th. The addendum was circulated for comment to all Ministries who had expressed a concern over the original submission.

The Environmental Assessment for which approval under The E.A. Act is being sought, includes: The Environmental Assessment Document, submitted on September 25, 1978 and Addendum No. 1, submitted on December 15, 1978.



Briefly, the EA deals with a proposal by the Ministry of the Environment (MOE) to establish new water treatment facilities of sufficient capacity to supply the water service area of the City of Port Colborne to the year 2000. The new water treatment plant is to have the capacity to treat 36.4 ML/D, (8.0 MGD). It is to be located on a new site and will completely replace the existing water treatment plant which is limited to a treatment capacity of 25.0 ML/D (5.5 MGD).

1) Purpose of the Review

The following review was prepared to fulfill the requirements of Section 7(1)(a) of The Environmental Assessment Act which states that:

"Where an environmental assessment of an undertaking is submitted by a proponent to the Minister, the Minister:

- a) shall cause a review of the assessment to be prepared; ..."

On direction of the Minister of the Environment, the Environmental Assessment Section of the Ministry of the Environment solicited comments from those Ministries and agencies of the Provincial Government which expressed an interest in reviewing the proposals. This review represents the combined comments of those Ministries and agencies, co-ordinated by the Environmental Assessment Section.

For purposes of this review, those Ministries which contributed comments and the Environmental Assessment Section are termed "the reviewers".

2) Acceptability and Approval

There are two decisions which must be made under Section 5(1) of The Environmental Assessment Act. The first concerns the acceptability of the EA itself, and the second is the determination of whether approval to proceed with the undertaking should or should not be given or should be given subject to terms and conditions. This review presents recommendations on these two decisions based on certain considerations.

The recommendation on acceptability of the Environmental Assessment has been made based on a consideration of the document in light of the purpose and requirements of the Act. In particular, the reviewers have arrived at their recommendation after forming the opinion that the information in the document is considered sufficiently complete and satisfactory to enable a decision to be made with regard to approval of the undertaking.

The recommendation on whether approval to proceed with the undertaking should or should not be given or should be given subject to terms and conditions has been made based on a consideration of the undertaking itself, the justification presented for the selection of the undertaking from a number of alternatives, the severity and extent of anticipated

environmental effects and the proposed mitigation measures. These conclusions were then related to the purpose of The Environmental Assessment Act which is to provide for the betterment of the people of the whole or any part of Ontario by the protection, conservation and wise management of the environment in Ontario (s.2).

It is the recommendation of this review that the environmental assessment be accepted and that approval be given to proceed with the undertaking subject to conditions set out on pages 18-20 of this review.

### 3) Status of the Review

It is important to clarify at this time that this review and the recommendations it contains represent only the preliminary position of the Ontario Government based on the comments of the Provincial Ministries and agencies involved in the review. It does not represent a decision and should not be construed as directing the Environmental Assessment Board in matters that may come before it. It is only after a consideration of any public submission received by the Minister of the Environment on the EA or the review, or after a hearing (if one is held) before the Environmental Assessment Board, that decisions on the acceptability of the Environmental Assessment, and on whether or not to approve this undertaking, will be made.

These decisions are made either by the Minister of the Environment, or by the Environmental Assessment Board, and may,

as specified in The Environmental Assessment Act, take one of three routes:

- i) The Minister decides on acceptance of the EA, and with the approval of Cabinet, also decides on approval of the undertaking;
- ii) The Board makes both decisions;
- iii) The Minister makes the first decision, and the Board makes the second one.

## II. THE UNDERTAKING

### 1. Description

The Ministry of the Environment is proposing to establish a new Water Treatment Plant with a filter capacity of 36.4 ML/D, (8.0 MGD) and a firm pumping capacity of 31.8 ML/D, (7.0 MGD).

The new facilities, to be located at a new site, will completely replace the old water treatment plant which has insufficient capacity to satisfy the distribution area during peak demand periods. The antiquated nature of the existing treatment and pumping facilities, the deteriorating condition of the existing plant building itself, and the limited size of the existing plant's site all contribute to make rehabilitation and expansion of the old plan impractical. The old plant's water intake line is prone to oil contamination from adjacent St. Lawrence Seaway Authority oil bunkering facilities. Incidents of oil

contamination and flooding of the pumping area during periods of high water level in the Welland Canal have resulted in the production of water, at the old plant, which does not meet acceptable Ministry of the Environment standards.

The new plant will draw its raw water from the same source as is used by the existing plant; the Welland Canal. The new water intake is to be located upstream of the Port Colborne West Water Pollution Control Plant outfall, which is located south of Seaway Lock No. 8.

The specific capacities of the proposed plant are as follows:

- a site and plant building with ultimate capacity of 54.5 ML/D, (12.0 MGD)
- a filter capacity of 36.4 ML/D, (8.0 MGD)
- a firm pumping capacity of 31.8 ML/D, (7.0 MGD).

In order to achieve these capacities the following facilities are proposed:

- i) a water intake system from the Welland Canal consisting of water intake pipe with oil trap, water screen, low life suction wells and low lift pumps;
- ii) flocculation tanks, alum sludge settling tanks and outfall to water pollution control plant via sanitary sewer system;
- iii) sand and anthracite filters with clear well and filter backwash pumping system;
- iv) backwash water treatment system including holding tank,

transfer pumps, washwater conditioning tank and outfall to Welland Canal;

- v) chemical treatment systems including chlorine storage and pumps;
- vi) high lift pumping station;
- vii) electrical transformer substation and standby engine driven generator set;
- viii) other structures including maintenance area and administration facilities involving control room, laboratory, washrooms, etc.

### III. CONTEXT OF THE REVIEW

In conducting a review of an environmental assessment, consideration must be given to the nature of the undertaking.

The contents of an EA, as required by The EA Act, are flexible enough to permit varying degrees of detail, having regard for the nature of the undertaking and the possible environmental effects. This must be kept in mind when carrying out a review. The level of detail deemed acceptable in the review of one undertaking, may not be acceptable for another.

The Port Colborne Water Treatment Plant EA is for the establishment of a new plant to service a community for which the distribution system is already in place. The raw water for the new plant will be drawn from the same source as that used for the old plant. The new plant is to be located on a vacant

site which is covered with disposal fill material. The property is owned by the Regional Municipality and is presently zoned "commercial service". The existing developments in the area are compatible with this zoning. The effects on the social and natural environment are therefore expected to be those minor, short-term, site specific impacts which will result from the activities of constructing the plant.

#### IV. SPECIFIC POINTS OF CONCERN

This section of the review outlines the main issues that were raised by the reviewers. The comments are organized to generally correspond with the content requirements, (Section 5(3)), of the Act.

##### 1) Need for the Undertaking

The Act requires that the EA's explanation of the problems being experienced at the old plant adequately justified the need for a new plant at a new site. However, the document's justification for the recommended sizing of that new plant left several concerns related to the projection of future demand. Reviewers initially felt that the 1.3% population growth rate, used to project the City's population to the year 2000, was overly optimistic, since recent statistics indicated that between 1971 and 1976 Port Colborne's population actually declined 4.3%. Reviewers were of the opinion that capital cost savings could be realized if a smaller population projection

figure was used.

The issue of demand was further complicated by the following two facts:

1. The EA cited 2.1% as being the average growth rate of the population of Ontario as a whole. This figure was considerably higher than the 1.4% figure which is contained in the document entitled Ontario's Changing Population Vol. 2, published in 1976 by the then Ministry of Treasury, Economics and Intergovernmental Affairs. This document is generally conceded to be the authority on this matter.
2. The city of Port Colborne had commissioned a study on the size of its urban services area. Unfortunately, the results of this study were not finalized prior to the submission of the EA and only preliminary conclusions could be drawn for application to the EA.

Although the question of the City's future population as it is related to determining the capacity of the new plant was of initial concern, reviewers felt that the discussions that were held with the proponent, as documented in the addendum, alleviated the concerns centering on this issue.

The addendum illustrated the fact that while a projected population figure may indicate the need for a plant of a certain



size, it is necessary, to examine the size in relation to current plant design practices. The nature and size of the pump and filter units that are available on the market dictated that the Port Colborne plant be sized at 27.2 ML/D, (6.0 MGD) or 36.4 ML/D, (8.0 MGD). The addendum indicated that the capital cost saving which would be achieved by using a lower population growth projection, (.4%), as opposed to the recommended population growth projection, (1.3%), to calculate the capacity required for the proposed plant would be insignificant, relative to the costs of the entire project, and would not be warranted when compared to the loss of plant capacity associated with such a reduction.

With respect to population in general, reviewers wished to caution all proponents of similar undertakings, that when citing projections for Ontario's population as a whole, the Ministry of Treasury and Economics should be consulted for the most current figures.

With respect to Port Colborne's urban services area study, reviewers wished to caution that the Region of Niagara and the City should keep abreast of the results of the study as they will have an influence on the need for future expansions to the proposed treatment plant.

## 2) Alternatives

The E.A. Act requires a discussion of alternatives to the undertaking and alternative methods of carrying out the undertaking.

In this E.A. the examination of various possible sources for raw water constituted the discussion of alternatives to the undertaking, while the examination of various possible sites for the plant constituted the discussion of alternative methods of carrying out the undertaking.

The emphasis in the EA was on satisfying a projected demand. While the addendum, did, to a certain extent, address the alternative of modifying the future demands for water, reviewers felt that a further discussion of this alternative, in this section of their view, would be of benefit, both to the City of Port Colborne and to all agencies responsible for water treatment and supply.

Initiating public education programs on water conservation, instituting financial incentives for off-peak use for industrial and commercial consumers and encouraging the use of water saving devices could result in reductions of both total and peak flows demands thus reducing new plant sizes and/or deferring the need for expansions to existing plants. As well as reducing demand of the consumer end, the opportunity exists to modify demand by reducing the amount of water lost through distribution. As was pointed out in the E.A., the City of Port Colborne has initiated an extensive leak detection program which has been successful in reducing the amount of water required to be produced at the existing treatment plant.

Addendum I makes the recommendation that leak detection programs be initiated every several years to maintain the watermains in

good condition. In addition to supporting this suggestion, reviewers strongly recommend that the Regional Municipality of Niagara and the City of Port Colborne periodically review the possibilities of initiating programs directed at modifying demand, with the aim of deferring the need for future expansions to the proposed new water treatment plant.

With respect to the discussion of the alternative methods of achieving the undertaking, the reviewers concurred with the proponent's choice of site No. 4 as being the optimal location for the new plant. Some objections were raised as to the amount of information that should have been documented to substantiate the site's selection. For instance, the location of each of the raw water intakes and possible sources of contamination could have been indicated on the plan which showed the alternative sites, so that the merits, (with respect to raw water quality), of each site could have been more easily assessed. Reviewers felt that the examination of some of the sites was carried to an unnecessary extreme. For instance, it would appear that sites 5, 6 and possibly 7 could have been rejected at the outset on the basis of their location downstream from the water pollution control plant outfall. Similarly, site 1 appeared to be in a location jeopardized by the proposed St. Lawrence Seaway Authority Seawall relocation. The Seawall relocation was cited, at the beginning of the EA, as being one of the reasons for not expanding the existing plant. Therefore, the value of carrying the examination of site 1 to the extent it was seems dubious.

Proponents of EA's should note that when dealing with the question of alternatives, some alternatives will be examined in less detail than others. A short study may reveal that they are unsuitable for some basic reason, and they will be eliminated early in the process. Other alternatives may "survive" to a much later stage in the process. All this should be documented, and will reflect the degree of detail with which the alternatives are described. Proponents are not encouraged to carry alternatives to subsequent stages of the study, once reasonable ground for discarding them have been identified.

### 3. Project Description

The EA should make it clear to the reviewers exactly what the undertaking involves. In this instance, this includes, not only, a description of the activities involved in establishing the new plant, but also a description of what is to be done with the existing plant.

The EA did not address the retirement of the existing water treatment plant and therefore reviewers had no way of knowing whether or not the old plant was of historic or architectural value.

However, discussion with the proponent revealed that such was not the case. The fate of the structure has not been decided but it will most likely be demolished.

The localized effects of demolition activities should be predicted by those responsible so that specific control measures can be established to mitigate these impacts.

#### 4. Environmental Effects

Concern was initially expressed over the fact that the original EA submission did not examine the possibility of there being a fishery in the Welland Canal. Reviewers felt that the potential impacts of the plant intake and outfall on fish should have been discussed, together with suggestions to mitigate these impacts. Although the canal has in fact, a "low use fishery" in terms of angling species, reviewers felt that any EA dealing with an undertaking having the potential to affect a fishery resources should contain an analysis of aquatic and shoreline biology beyond a mere consideration of basic surface water chemistry.

Reviewers felt that the additional information provided in Section 6 - Marine Life Protection - of the addendum adequately addressed the concerns centering on the fishery issue.

#### 5. Mitigation of Adverse Environmental Impacts

In addition to the items contained in Chapter 7 of the EA, which deals with the mitigation of construction impacts, the reviewers felt that the following sections from the Ministry of the Environment's publication entitled, "Environmental Considerations for the Planning and Construction of Provincial Sewer and Water Projects" should be applied:

- A - Equipment Fuelling, Maintenance and Storage
- D - Noise Control
- E - Dust and Particulate Control
- F - Clearing Rights-of-Way
- G - Site Drainage and Erosion Control
- H - Working Area Delineation
- I - Dewatering
- L - Site Restoration.

These mitigation measures should be included in the construction specifications for the project to ensure that they can be enforced by an on-site inspector.

#### V. CONCLUSIONS

The previous discussion has identified the major issues that were raised as concerns by the review team.

The original EA submission contained deficiencies in certain areas of information required to be provided. However, the reviewers felt that the majority of these deficiencies were adequately addressed in the addendum to the EA. The concerns that remained outstanding were not considered to be significant enough to make this EA unacceptable as a basis for deciding on project approval.

Both the proponent of this particular project and all agencies contemplating doing EA's for similar types of undertakings are

advised to consider the statements of caution and recommendation that are contained in Section IV of this review.

It is concluded therefore that the EA can be accepted provided the conditions recommended in the following section of this review are imposed on the approval.

## VI. RECOMMENDATIONS

Having regard to the purpose of The Environmental Assessment Act, and the content requirements of Section 5(3), the reviewers are of the opinion that the information in the assessment is sufficient and satisfactory to enable a decision to be made as to approval of the undertaking. Therefore, it is recommended that the environmental assessment be accepted (s.9).

Having regard to the purpose of the Act, the nature of the undertaking and the environmental assessment, it is recommended that the undertaking be given approval to proceed subject to the following conditions (s.14).

### Recommended Conditions of Approval

1. The undertaking is limited to the establishment of a water treatment plant with a filter capacity of 36.4 ML/D (8.0 MGD) and a firm pumping capacity of 32.0 ML/D, (7.0 MGD). This involves establishment of the following facilities:

- i) a water intake system from the Welland Canal consisting of water intake pipe with oil trap, water screen and low lift suction well low lift pumps;
  - ii) flocculation tanks, alum sludge settling tanks and outfall to water pollution control plant via sanitary sewer system;
  - iii) sand and anthracite filters with clear well and filter backwash pumping system;
  - iv) backwash water treatment system including holding tank, transfer pumps, washwater conditioning tank and outfall to Welland Canal;
  - v) chemical treatment systems including chlorine storage and pumps;
  - vi) high lift pumping station;
  - vii) electrical transformer substation and standby engine driven generator set;
  - viii) other structures including maintenance area and administration facilities involving control room, laboratory, washrooms, etc.
2. The plant must be designed in such a manner as not to result in an increase in ambient noise levels in the adjacent residential areas during operation.
3. Before the water from the disinfection of the facilities, which is carried out prior to putting them into operation, is discharged to a watercourse, the proponent must institute procedures whereby the Total Residual Chlorine is reduced to at least 0.1 mg/l as measured using an Amperometric Titrator or the D.P.D. Comparator Method.



4. The mitigation measures outlined in Section 7 of the E.A. and Sections A, D, E, F, G, H, I, L of the MOE publication, "Environmental Considerations for the Planning and Construction of Provincial Sewer and Water Projects" must be contained in the construction specifications and enforced by the proponent's on-site inspectors.
5. The proponent shall be responsible for ensuring that tender documents are in accordance with the environmental assessment, the approval and the associated conditions. One copy of the final plans and specifications shall, before tenders are advertised, or otherwise let, be sent to the Director of the Environmental Approvals Branch of the Ministry of the Environment.
6. The proponent shall be responsible for ensuring, by site inspection and such other methods as may be required, that the construction of the undertaking is carried out in accordance with mitigation measures referred to in Conditions 3 and 4.

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